Title
A comparison of U18 school and academy rugby union match play

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Introduction
Understanding the physical demands of rugby union can assist coaches in the preparation of players. Match demands in senior players for domestic competitions (Cahill et al., 2013) and international games (Quarrie et al., 2013) are well established. However, despite adolescent rugby union players playing concurrently at various standards, there is no study that has attempted to compare them. Therefore, the purpose of this study was to compare the physical demands of U18 school vs. academy rugby union match play.

Methods
A full season of games from the academy (6 games) were analysed and matched by six games from the school standard. Each player wore a microtechnology unit which contained a global positioning system and tri-axial accelerometer in addition to a heart rate monitor. The players were spilt into forwards and backs with only players who participated in the entire game included in the subsequent analysis (Forwards; school [n=25], academy [n=21] and Backs; school [n=25], academy [n=24]). All data were analysed using magnitude based inferences. Institutional ethical approval was granted.

Results
Forwards: Total distance was almost certainly greater in academy forwards (5461 ± 360 *vs*. 4881 ± 388 m). Distance walking was unclear between the two groups, but jogging, striding and sprinting was almost certainly, very likely and likely greater in academy forwards in comparison to school forwards. PlayerLoad^{TM} slow was possibly greater for academy forwards whilst heart rate mean and maximum was likely lower for academy forwards. *Backs:* Total distance was very likely greater in academy backs (5597 ± 383 *vs.* 5260 ± 441 m). Distance walking and sprinting was unclear. Distance jogging was almost certainly greater in the academy backs and striding was possibly greater. PlayerLoad^{TM} slow was possibly greater in academy backs whilst heart rate mean and maximum was unclear between the two groups.

Discussion
This study shows that academy rugby union provides forwards and backs with a greater physical demand than school players of the same position. The increase in PlayerLoad^{TM} slow suggests an increase in static exertions for academy players. Future research should look to explore the interaction between physical and technical performances between different standards of adolescent rugby union.

References

Cahill, N. Lamb, K. Worsfold, P. Headey, R. & Murray, S. (2013) The movement characteristics of English Premiership rugby union players. *Journal of Sports Science,* 31 (3), pp. 229-237.
Quarrie, K.L., Hopkins, W.G., Anthony, M.J., & Gill, N.D. (2013). Positional demands of international rugby union: Evaluation of player actions and movements. *Journal of Science and Medicine in Sport,* 16 (4), pp. 353-359.

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